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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,070	09/11/2003	Zachary Merlynn Loafman	AUS920030432US1	6184

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EXAMINER

DOAN, DUC T

ART UNIT

PAPER NUMBER

2188

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,070

Applicant(s)

LOAFMAN, ZACHARY MERLYNN

Examiner

Duc T. Doan

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-12 and 15-19 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 13, 14, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-21 are in the application.

Claims 6-7,13-14,20-21 are objected to.

Claims 1-5,8-12,15-19 are rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,8-11,15-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Bonewick (A Slab Allocator) and in view of Printezis et al (US 6249793).

As in claim 1, Bonewick describes a method of squeezing slabs empty, a slab being a block of allocated memory space (Bonewick's paragraph 3.2 lines 1-12), the method comprising the steps of: determining whether a slab is to be squeezed empty (Bonewick's paragraph 3.2 lines

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13-18 reclaiming unused memory when slab reference count goes to zero); The claim further recites and precluding, if the slab is to be squeezed empty, data from being placed in any unused space of the slab. Bonwick does not describe the claim's detail of precluding data during the squeezed empty operation. However, Printezis describes a garbage collection mechanism that runs concurrently with program execution capable of selecting objects of a region to be reclaimed, when it detects the writing to objects in the region, suspending the program, redirects the pointers of objects to point to locations outside the region, then restarts the program (Printezis's Fig 9, column 7 line 58 to column 8 line 63). It would have been obvious to one of ordinary skill in the art at the time of invention to include the garbage collection mechanism as suggested by Printezis in Bonwick's system to redirect the pointers to outside of the memory region being reclaimed thereby providing a large region of memory to be reclaimed for future allocation (Printezis's column 8 lines 55-65).

As for claim 2, the claim recites wherein data is precluded from being placed in any space in the slab that becomes unused anytime thereafter. The claim rejected based on the same rationale as in the rejection of claim 1.

As for claim 3 the claim recites wherein the slab is de-allocated when the slab becomes empty (Bonewick's paragraph 3.2 lines 13-18 describes reclaiming when reference count is zero).

As for claim 4, the claim recites wherein precluding data from being placed in an unused space of the slab includes disclaiming the unused space (Bonewick's paragraph 3.2 describes reclaiming a slab of memory, thus including any left-over bytes that are not assigned to objects).

Claims 8,15 rejected based on the same rationale as in the rejection of claim 1.

Claims 9,16 rejected based on the same rationale as in the rejection of claim 2.

Claims 10,17 rejected based on the same rationale as in the rejection of claim 3.

Claims 11,18 rejected based on the same rationale as in the rejection of claim 4.

Claims 5,12,19 rejected under 35 U.S.C. 103(a) as being unpatentable over Bonewick (A Slab Allocator), Printezis et al (US 6249793) as applied to claims 4,11,18 respectively and further in view of Benayon et al (US 6249852).

As for claim 5, the claim recites wherein a collection of slabs is a pile, the pile having a maximum amount of allowable memory space that can be allocated thereto. Bonewick and Printezis do not describe the claim's detail of categorize slabs into a pile. However, Benayon describes pools of memory in which each pool is provided for a specific object memory size and a specific page list for every rounded object size (Benayon's column 2 lines 50-55, column 3 lines 58-62). It would have been obvious to one of ordinary skill in the art at the time of invention to include the memory pools mechanism as suggested by Benayon in Bonewick's system to maintain separate page lists for every rounded object size, thereby reduce the number of pages being touched during an allocation or de-allocation (Benayon's column 4 lines 43-54).

Claims 12,19 rejected based on the same rationale as in the rejection of claim 5.

Allowable Subject Matter

Claims 6-7,13-14,20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sexton et al (US 6604182).

Feguson et al (US 5293614).

Dussud et al (US 6598141).

Fresko et al (US 6349312).

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner

